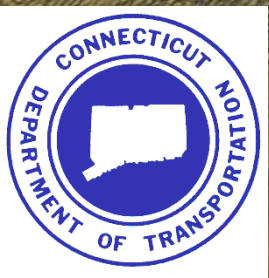
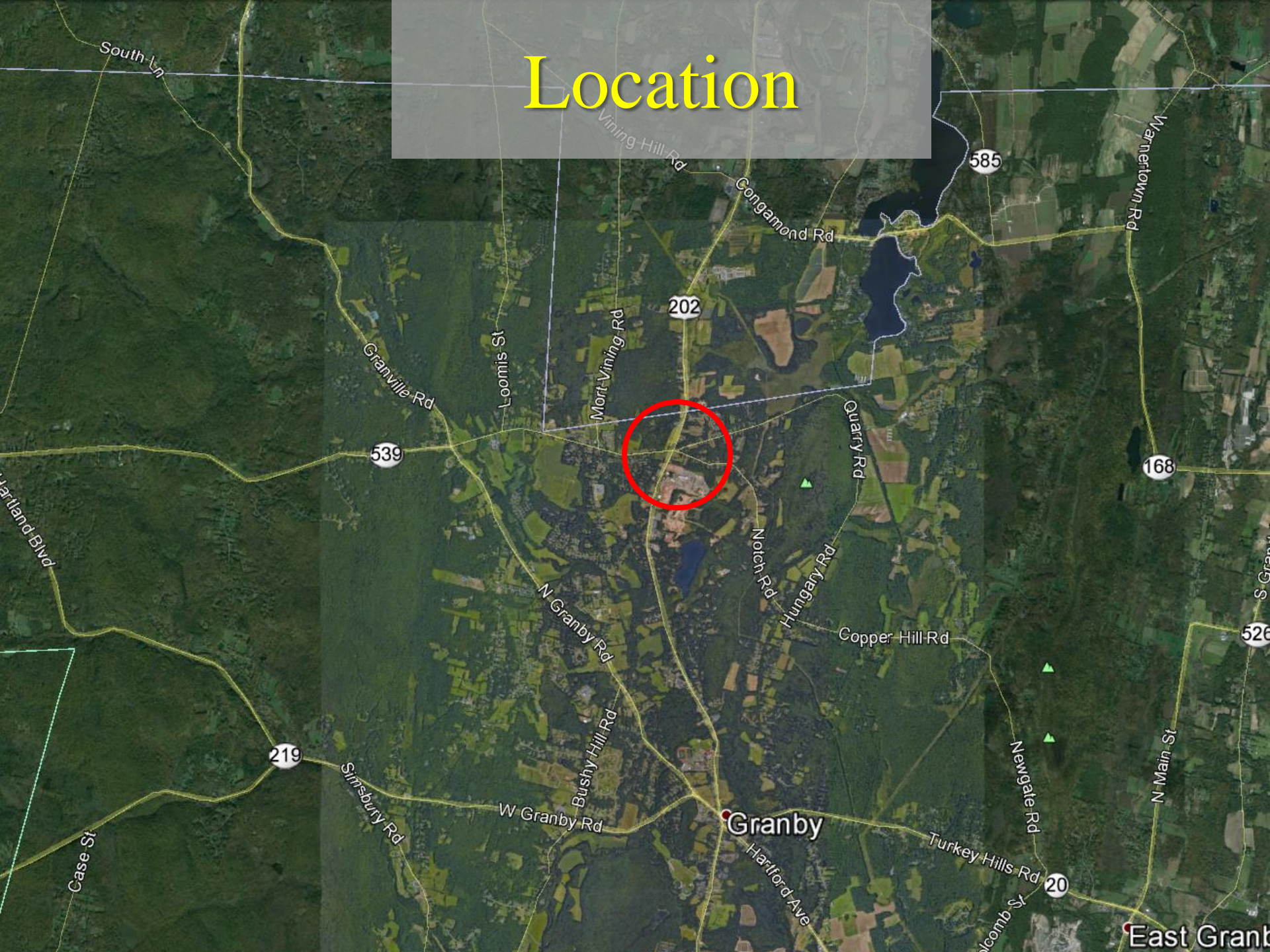


# Public Informational Meeting Route 10 at Notch Road and East Street Town of Granby





# Location





# Location

Route 10 & 202  
(Salmon Brook Road)

East Street

Quarry Road

Route 10 & 202  
(Salmon Brook Road)

Notch Road



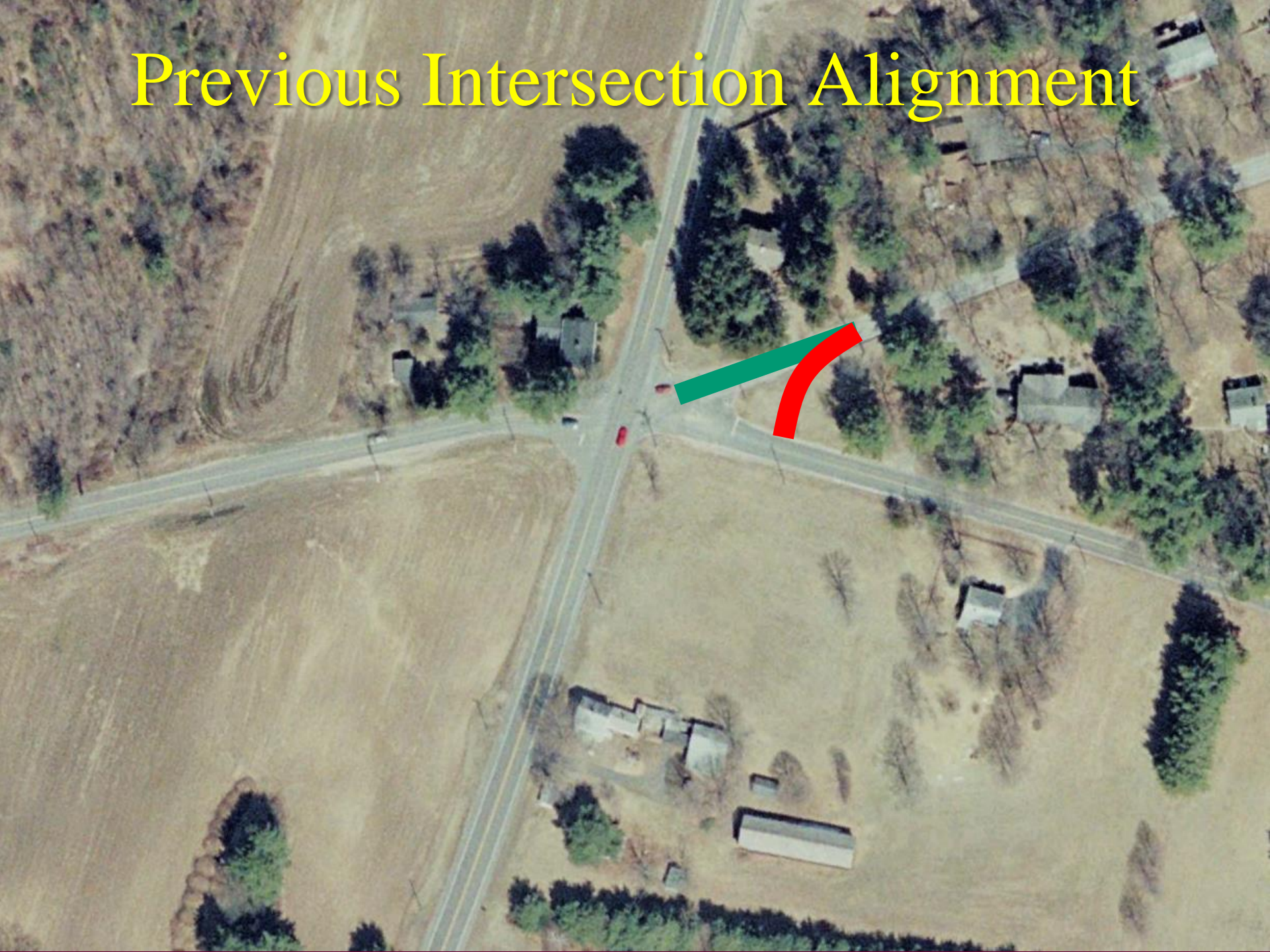


# Background

- 1995 - Town officials request traffic signal (before Quarry Road was realigned)



# Previous Intersection Alignment



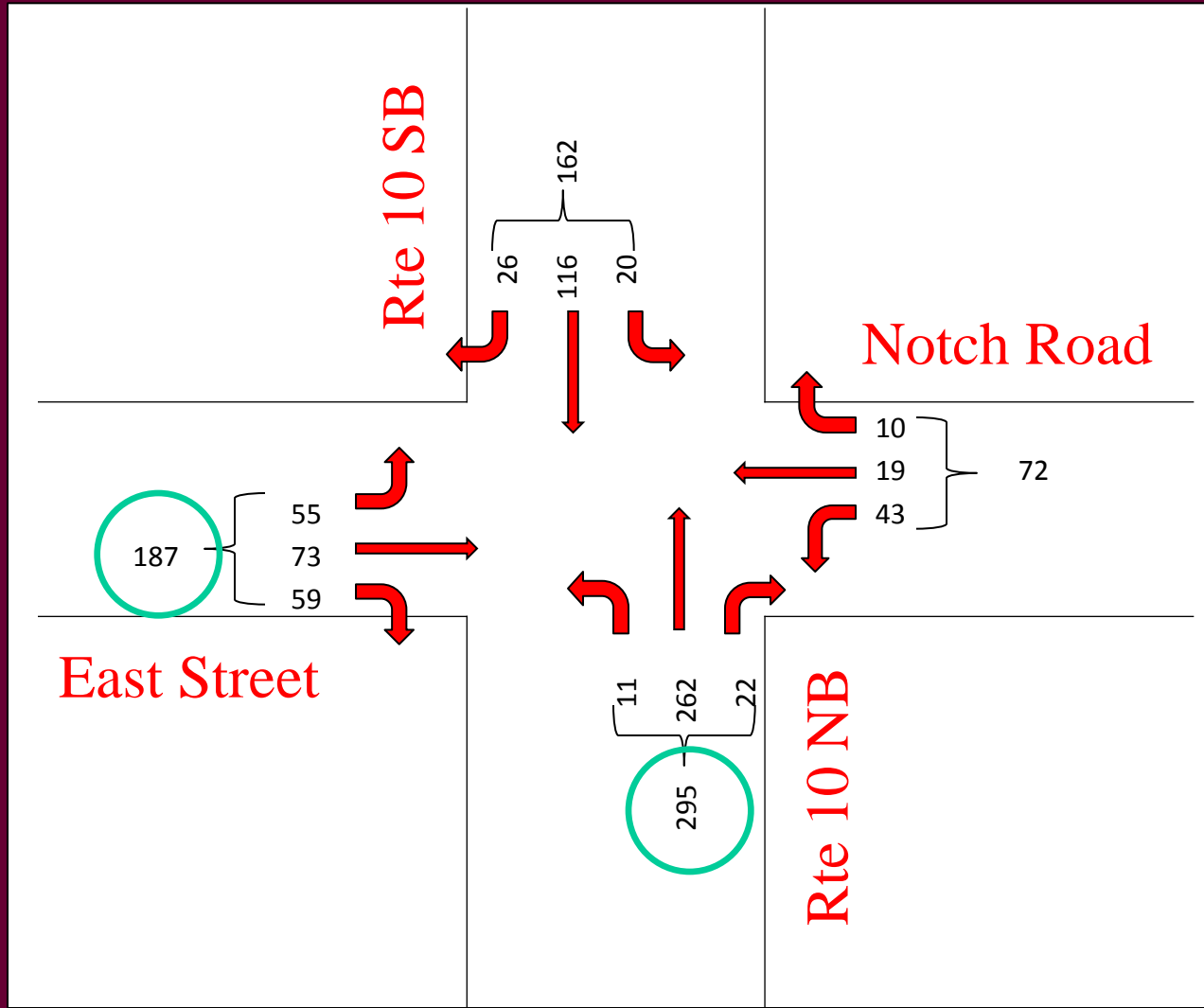


# Background

- 1995 - Town officials request traffic signal (before Quarry Road was realigned)
- 1995 – CRCOG study does not recommend signal (did not meet volume warrants), recommends realigning Quarry Road
- 2010 - Town realigns Quarry Road
- 2013-2015 – Town and DOT discuss signalizing the intersection, volumes do not meet warrants. DOT proposes roundabout.

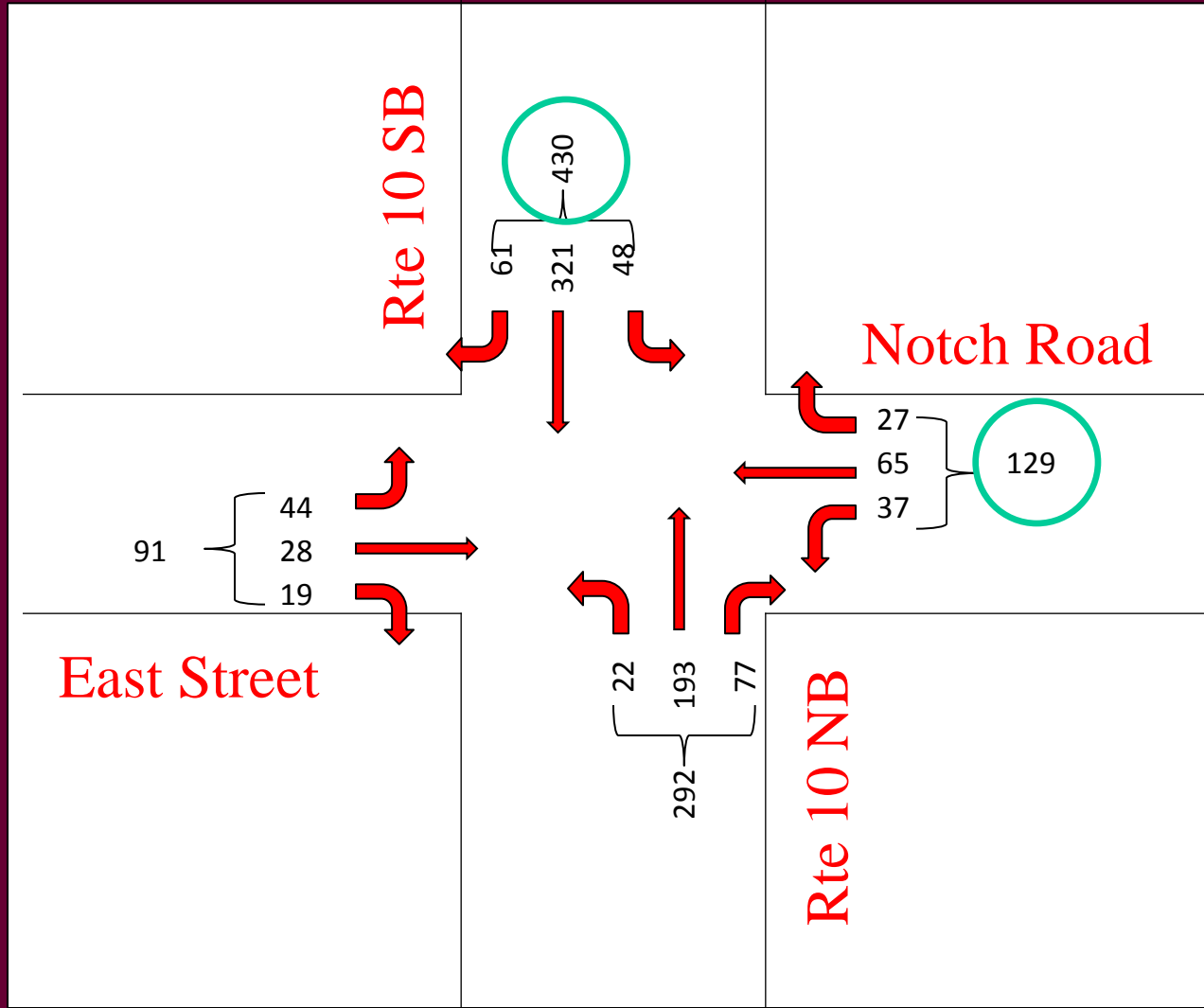


# AM Peak Hour Volumes





# PM Peak Hour Volumes





# Crash History 2012 - 2014

- (A) 6-2-12, 12:43 PM, 1 inj. C, rain  
8-28-12, 4:21 PM  
5-7-13, 7:54 AM  
11-12-13, 9:21 AM, 1 inj. C
- (B) 1-6-13, 2:40 PM, 1 inj. A + 2 inj. C  
2-10-13, 5:18 AM, 1 inj. C,  
snow/slush, dark - not lit
- (C) 4-28-13, 2:20 PM
- (D) 1-7-14, 7:02 PM, dark -lit
- (E) 2-20-14, 6:25 AM
- (F) 7-26-14, 3:49 PM, 1 inj. C
- (G) 9-19-14, 1:37 PM, 5 inj. B
- (H) 12-2-14, 3:47 PM, 1 inj. B

(2012-2014) TOTAL: 12

8 ANGLE

2 TURNING - INTERSECTING PATHS

1 FIXED OBJECT

1 SIDE SWIPE - SAME DIRECTION

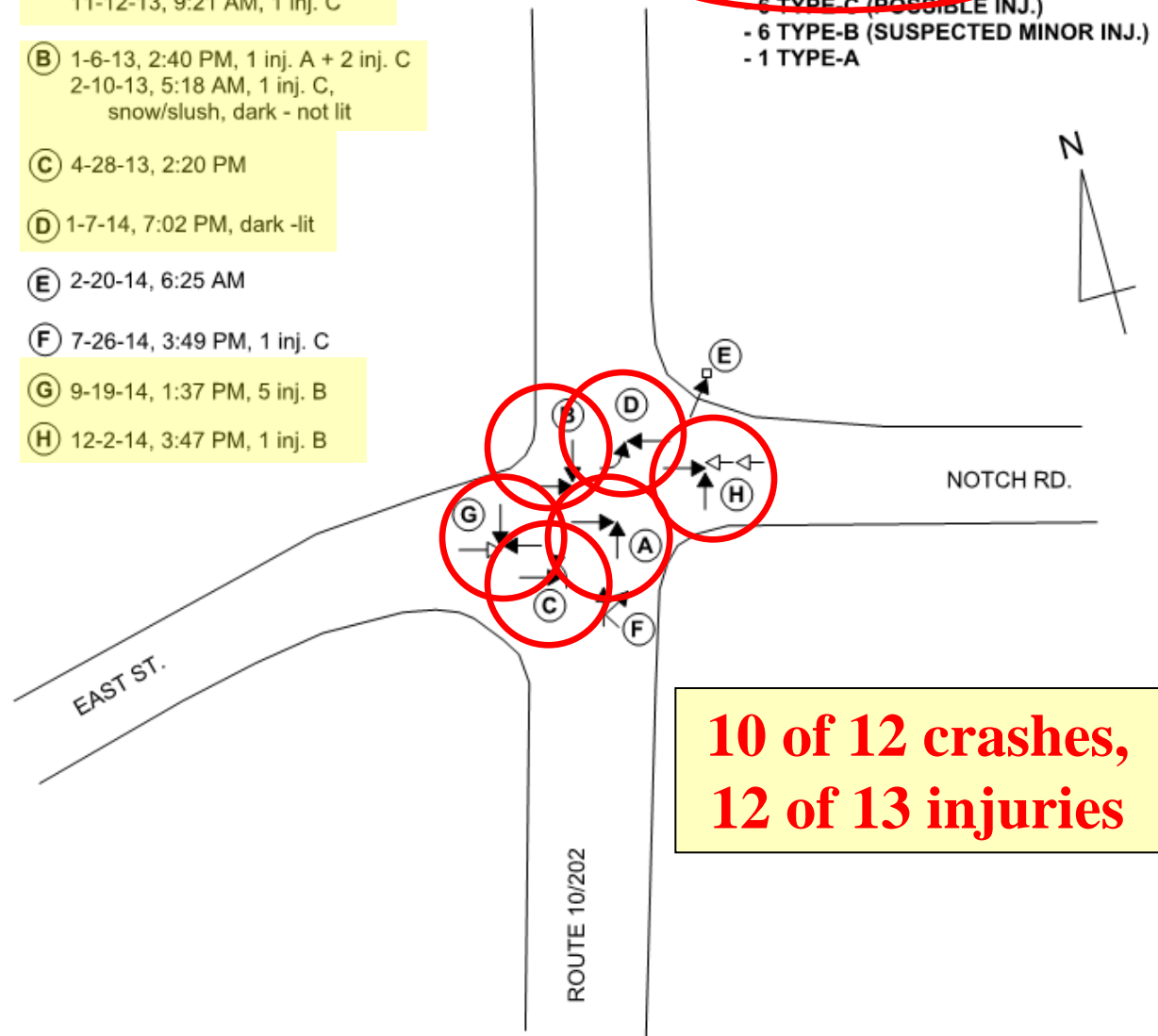
7 INJURY CRASHES

13 TOTAL INJURIES

6 TYPE-C (POSSIBLE INJ.)

- 6 TYPE-B (SUSPECTED MINOR INJ.)

- 1 TYPE-A





# Reasons for Crashes?

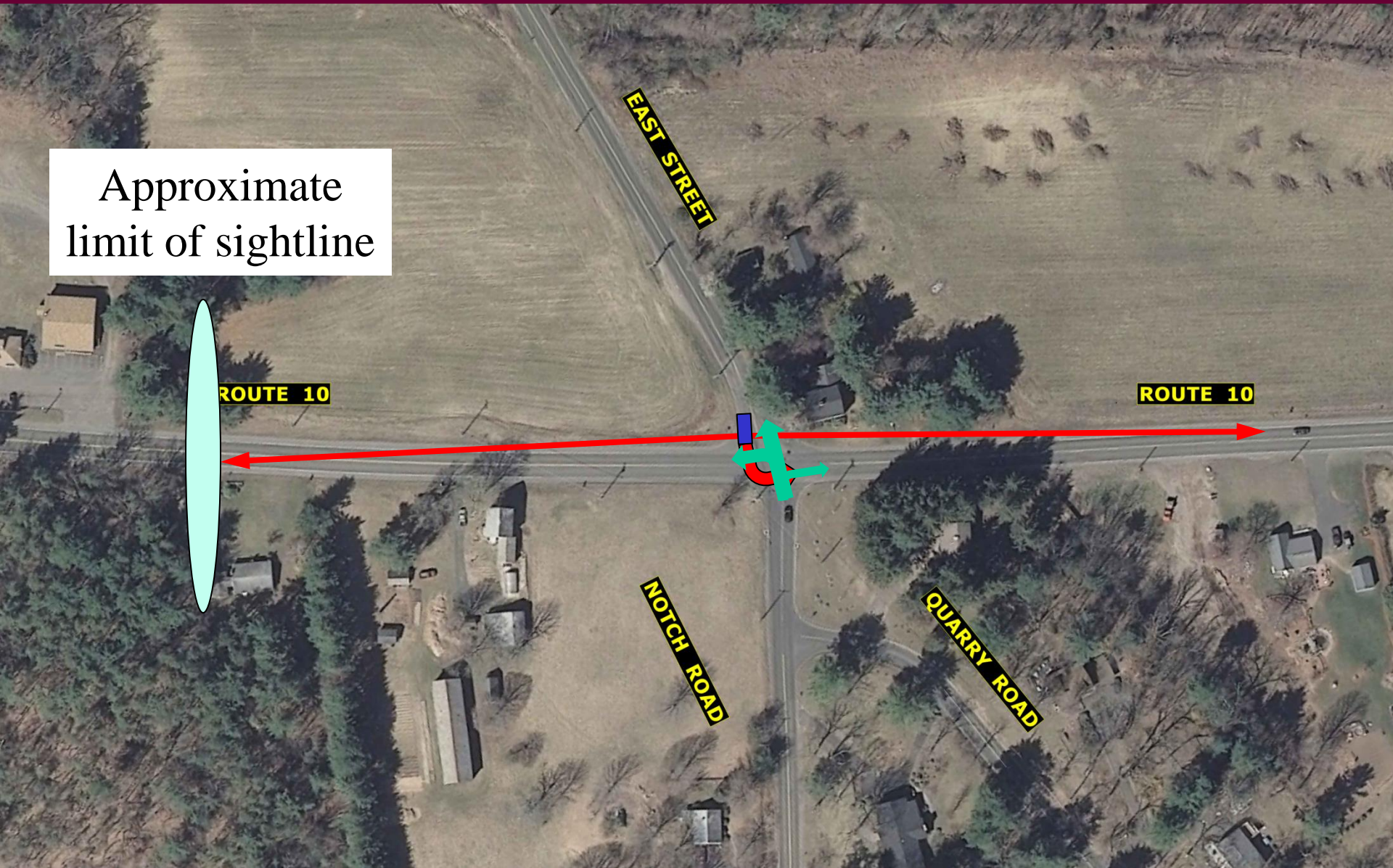
- Speed limit 45 MPH, actual speeds reasonably close
- Sightlines limited by crest and house but “adequate” for speeds
- Volumes relatively low

# Combination of Factors

- Traffic on Notch Road and East Street need a gap in both directions on Route 10 and opposing leg, all at the same time
- Enough traffic that gaps can be limited
- Restricted sight lines require drivers to constantly check for oncoming traffic
- A lot of information to process at one time
- Drivers tend to jump when they think there is a gap



# Current Intersection



Approximate  
limit of sightline

ROUTE 10

ROUTE 10

EAST STREET

NOTCH ROAD

QUARRY ROAD

# Why not a Signal?

- Volume warrants not met
- Signal would result in more crashes:
  - High speed rear-ends on Route 10
  - Angle crashes
  - Head-on left turning crashes
- Would require additional lanes
- Would not address high speeds

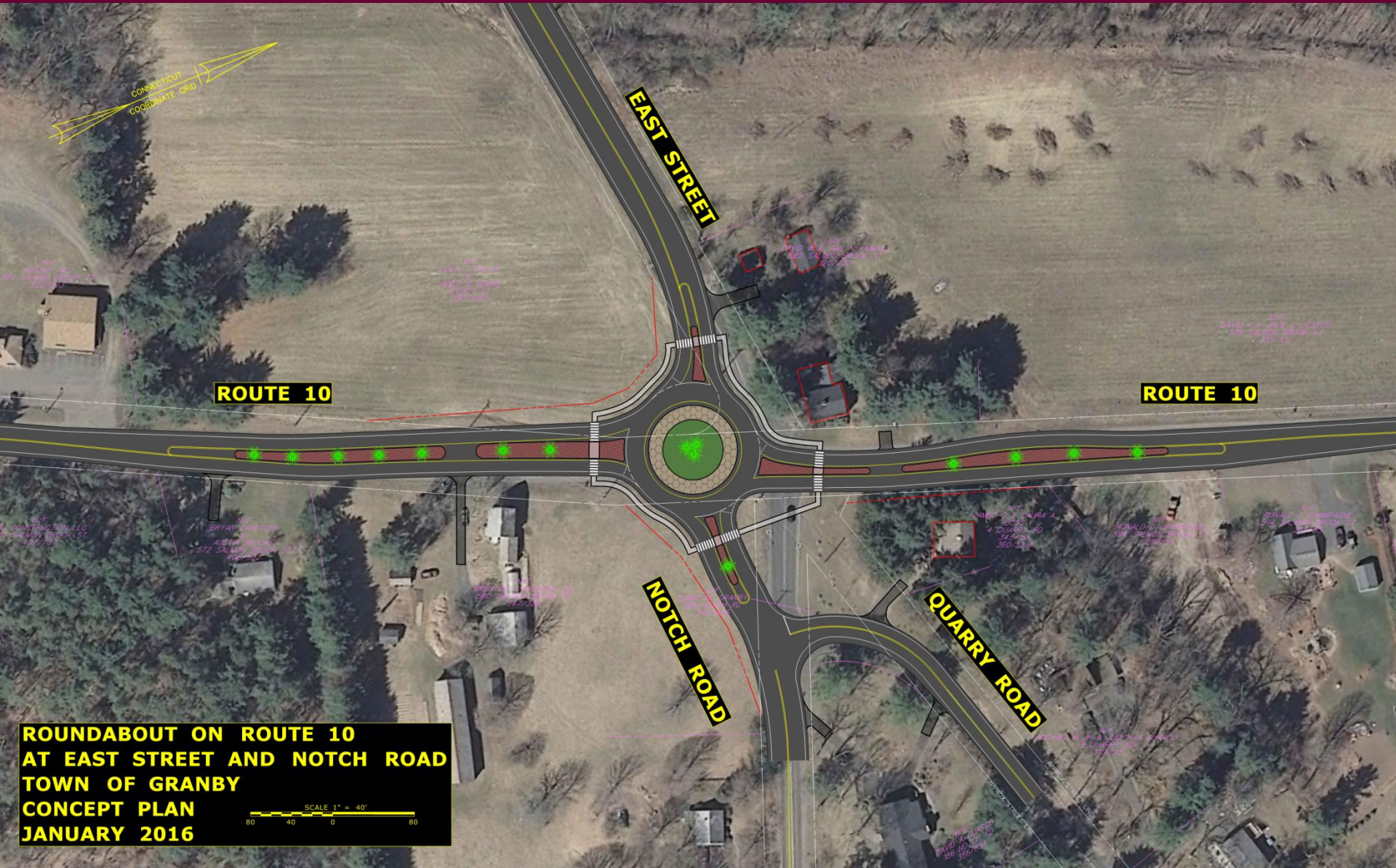


# Current Intersection





# Conceptual Roundabout Plan





# What is a Modern Roundabout?

- Similarities to old “traffic circles”, but with significant differences
- Used in Europe for many years, have become very popular in U.S. due to reductions in accidents and congestion
- Over 3,000 in U.S., including Colorado, Florida, Maryland, Vermont, many others
- Single lane vs. multi-lane

# Roundabout vs. Traffic Circle

- Drivers yield on entry
- Much smaller circle (reduces speed, congestion and accidents)
- No weaving, no lane changing



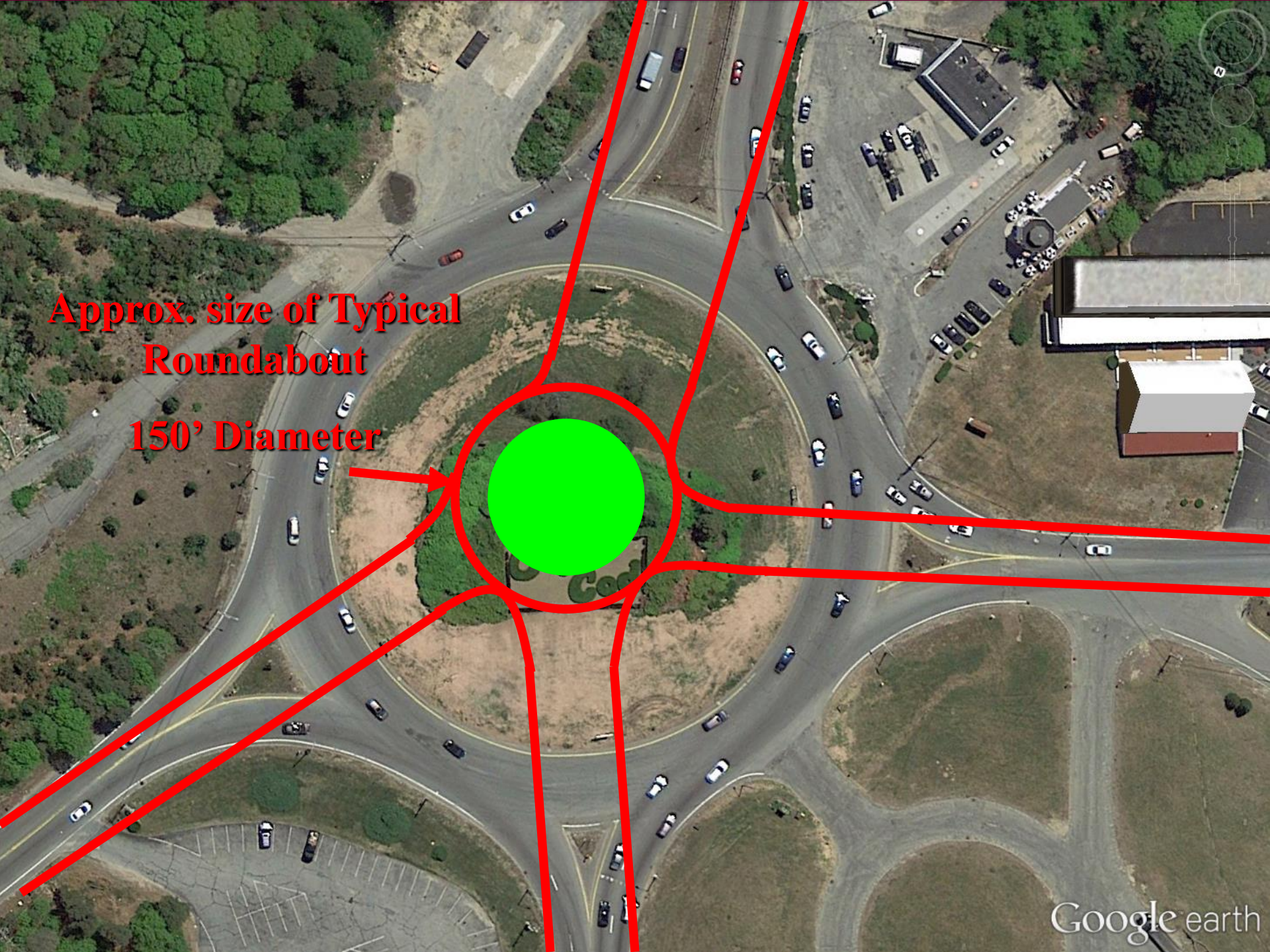
# NOT a Roundabout

Approx. 400 foot  
Diameter





**Approx. size of Typical  
Roundabout  
150' Diameter**





# NOT a Roundabout

Two circulating lanes

One exit lane



# West Haven (Before)



CTDOT Project 156-173  
Existing Conditions





# West Haven (Built - 6/08)





# Advantages of a roundabout

Compared to a signal, a roundabout will provide:

- Lower speeds
- Improved Safety
- Reduced Delays/Congestion/Pollution
- Less Pavement/Improved Aesthetics
- Approximately Same Construction Cost, Lower Maintenance Costs

# Insurance Institute for Highway Safety

## Roundabouts

**They sharply reduce crashes, study finds**

Roundabouts may be an unfamiliar type of intersection in the United States, but they're becoming more familiar as evidence of their benefits grows. Improved traffic flow, aesthetics, and cost savings make roundabouts a good idea, and the safety gains are compelling. An Institute study shows far fewer crashes occur at intersections with roundabouts than at intersections with signals or stop signs. This is especially true of crashes

# Crash Reductions

Insurance Institute for Highway Safety Report

[www.highwaysafety.org](http://www.highwaysafety.org)

Compared 24 Roundabouts (single and multi-lane)  
in 8 states to signalized and all-way stop  
controlled intersections they replaced:

- Total crashes reduced by **39%**
- Injury crashes reduced by **76%**
- Fatal/Incapacitating crashes reduced by **90%**
- Pedestrian crashes reduced by **30-40%**



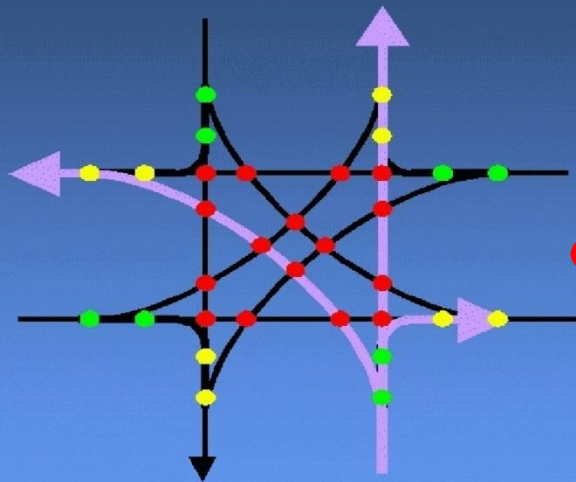
# Reasons for Improved Safety

- **Lower speeds (15-25 MPH)**
- **No left turns**
- **Fewer decisions to make/information to process**
- **Reduced number of conflict points**



# Reasons for Improved Safety

## Vehicle conflict points: Conventional intersection

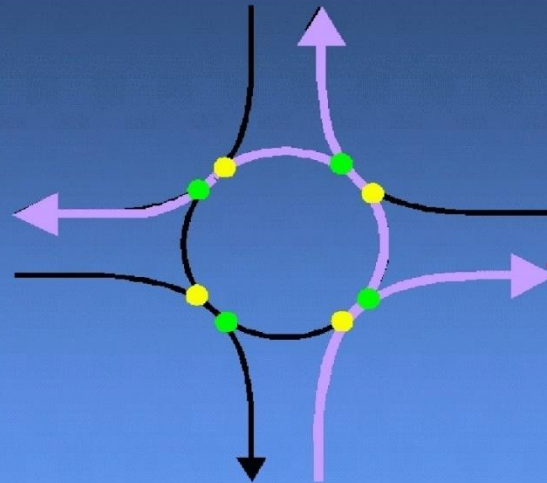


### Conflict Types

● Diverge:	8
● Merge:	8
● Crossing:	16

Total: 32

## Vehicle conflict points: Roundabout



### Conflict Types

● Diverge:	4
● Merge:	4
● Crossing:	0

Total: 8

- Crossing conflicts – highest chance for injury



# Safety Benefits of Lower Speeds





# Killingworth Before





# Killingworth After





# 2013 National Roadway Safety Award for Killingworth

50% Reduction in crashes

78% Reduction in Injuries





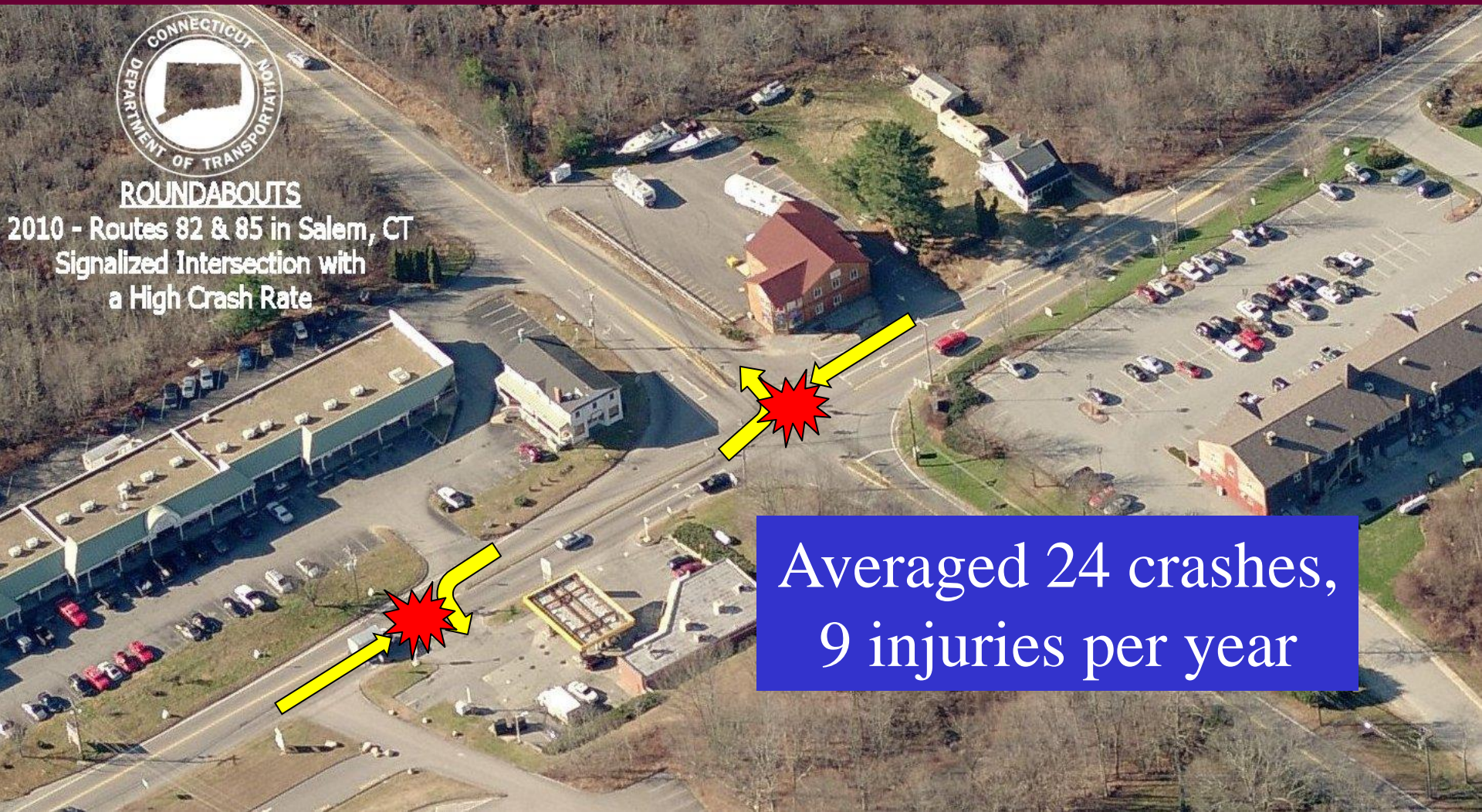
# Salem – Route 85 at Route 82

## Previous Condition - Signalized



### ROUNDABOUTS

2010 - Routes 82 & 85 in Salem, CT  
Signalized Intersection with  
a High Crash Rate



Averaged 24 crashes,  
9 injuries per year



# Congestion

- Extensive Backups
- Summer Weekends  
Significant Delays  
for Beach Traffic
- Notorious Delays





# Today – Modern Roundabout

- 67% Reduction in crashes
- 0 Injuries/18 months
- Virtually No Delays



## ROUNDBABOUTS

2012 - Routes 82 & 85 in Salem, CT  
Roundabout with two 2-lane approaches





**BY TIM PADGETT**

CARMEL, IND., IS DRIVING IN circles. Since 2001, the Indianapolis suburb has built 50 roundabouts, those circular alternatives to street intersections that have become a transit fixture in much of the rest of the world. Because roundabouts force cars to travel through a crossroads in a slower but more free-flowing manner—unlike traffic circles, roundabouts have no stop signals—in seven years, Carmel has seen a 78% drop in accidents involving injuries, not to mention a savings of some 24,000 gal. of gas per year

per roundabout because of less car idling. “As our population densities become more like Europe’s,” says Mayor Jim Brainard, who received a climate-protection award this year from the U.S. Conference of Mayors, “roundabouts will become more popular.”

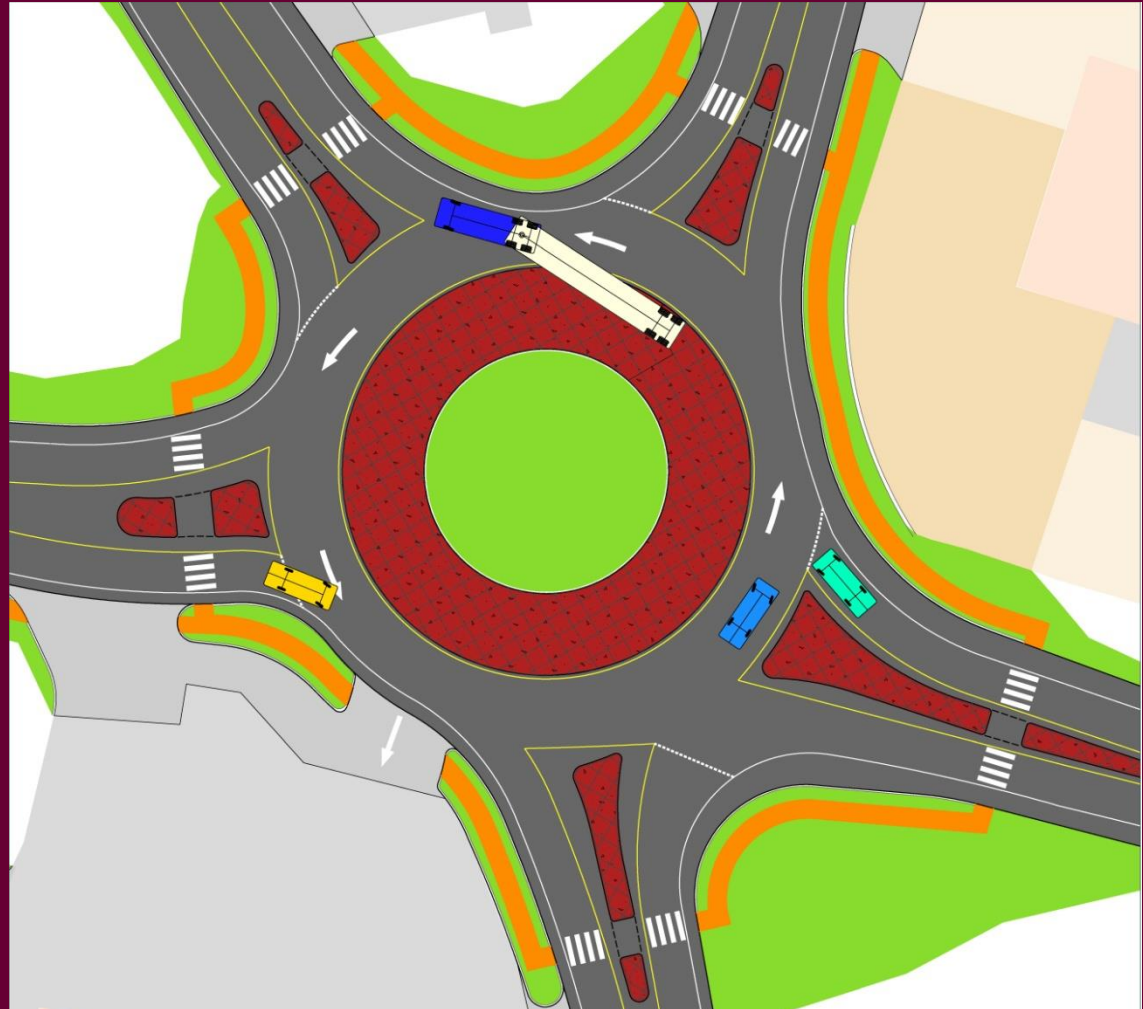
About 1,000 roundabouts have been built in 25 states, and research bears out the benefits to states like Kansas, where the new design has produced a 65% average drop in vehicular delays, according to a recent Kansas State University study. Most roundabouts are also more aesthetically pleasing and cost much less to



the need for any stop signals ... Roundabouts cut hydrocarbon emissions at intersections by as much as 42% ... Ten roundabouts in Virginia save 200,000 gal. of gas a year (no more idling!) ... In Kansas, roundabouts have eased traffic delays by an average of 65%

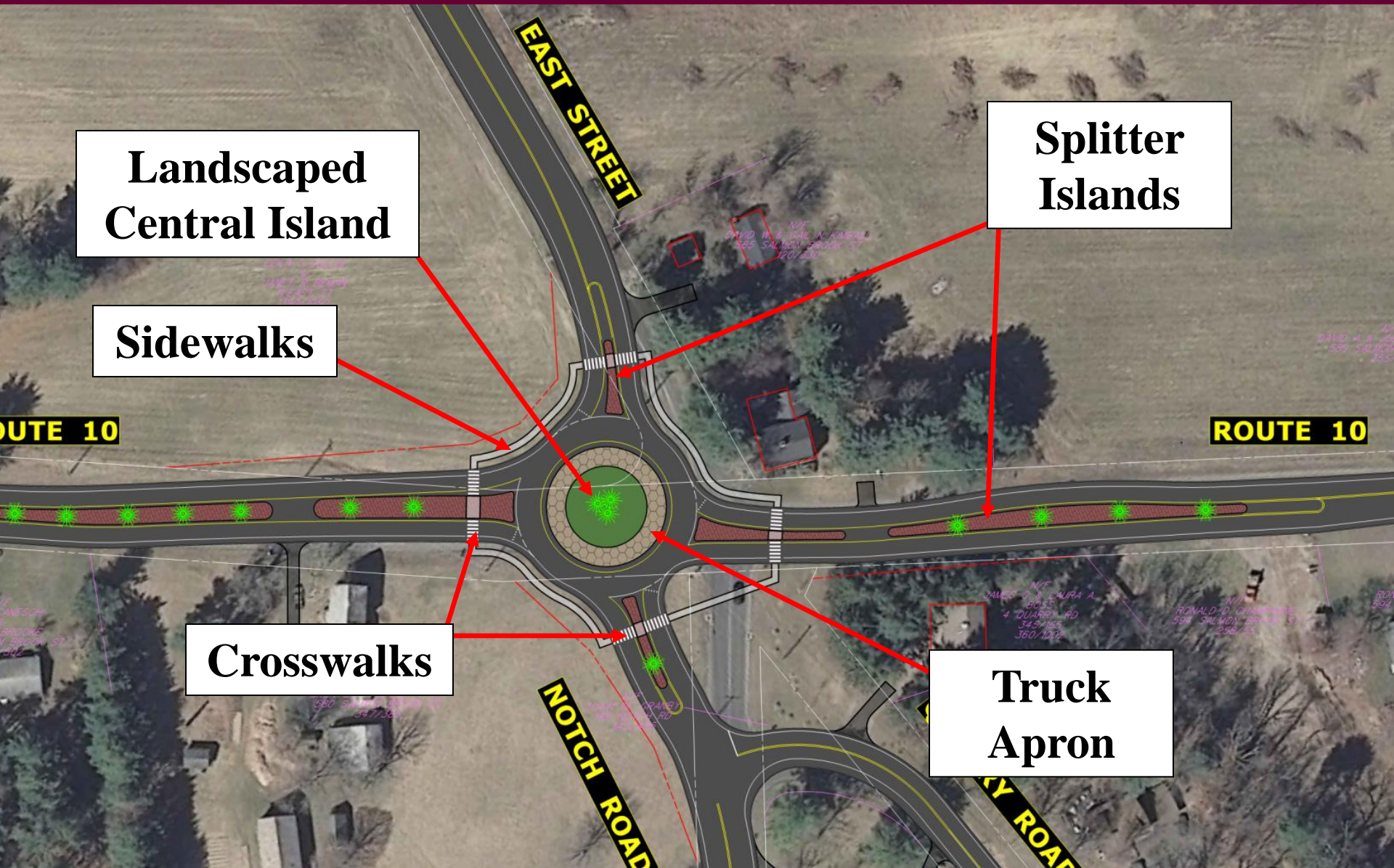
# Driving a Roundabout

- Entering traffic yields to traffic in roundabout
- All traffic goes right
- Yield to pedestrians





# Roundabout Features



**Landscaped  
Central Island**

**Sidewalks**

**Crosswalks**

**Splitter  
Islands**

**Truck  
Apron**



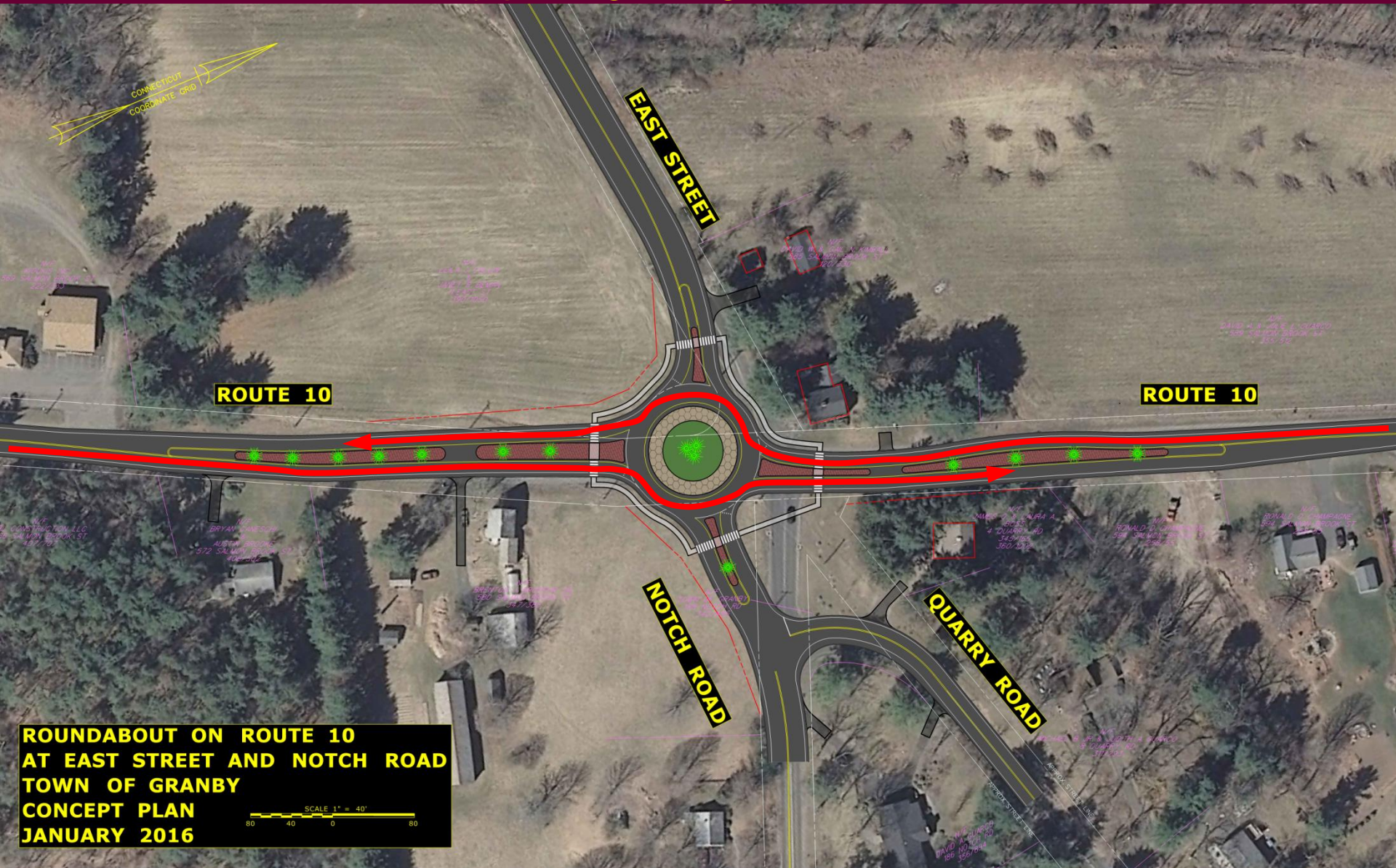
# Truck using truck apron New London, CT

Rear wheels on apron





# Deflection limits speeds to 10-20 MPH





# Other Enhancements

- Decorative Lights
- Sidewalks
- Landscaping
- Gateway Treatments



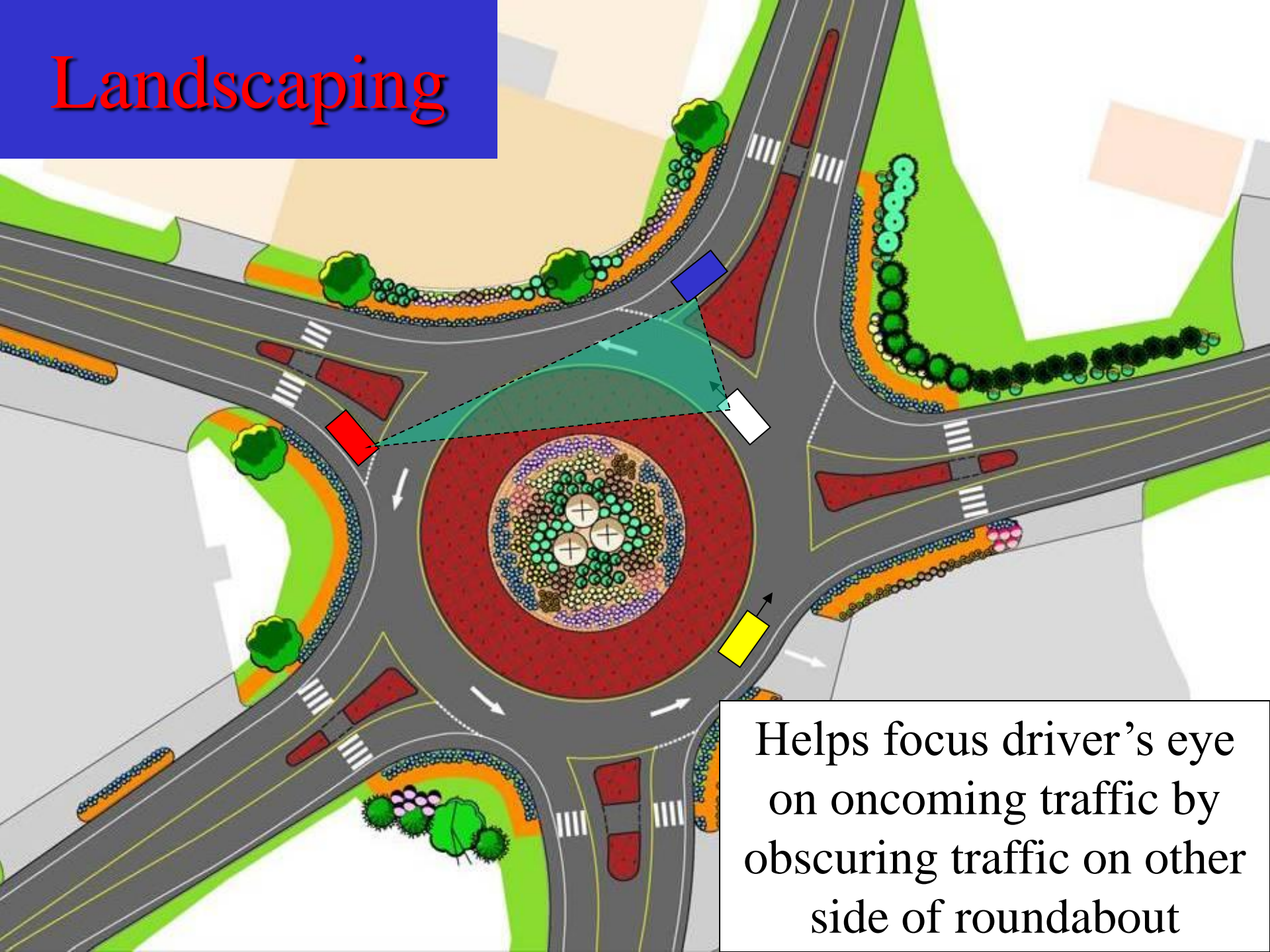


# Landscaping West Haven (Built – 9/08)





# Landscaping



Helps focus driver's eye  
on oncoming traffic by  
obscuring traffic on other  
side of roundabout





Welcome to  
Killingworth  
Established 1667

# Public Acceptance of Roundabouts

- Always controversial
- National study:
  - Before construction: 68% opposed
  - After construction: 73% in favor
- Connecticut experience: no formal study, but appears to be in line with national study



**From:**

**Sent:** Sunday, January 08, 2012 3:37 PM

**To:** Norman, James H

**Cc:** [mblanchette@ellington-ct.gov](mailto:mblanchette@ellington-ct.gov)

**Subject:** Great Job to ALL -Project # 47-116

Just to pass this on, to you and your department, along with the Town of Ellington and all those involved,

The new Round About at the 5-corners Is "the greatest thing since sliced bread" as they would say. I've been traveling through there daily since 1968 and traffic has never flowed more smoothly as it does now.

The time and studies put into the project was well worth it. It works so slick. I have never seen a back-up since the day they put the barrels up during construction.

I'm sure we will see more of these in the future around the state even for four corner intersections.

The new Round About at the 5-corners Is "the greatest thing since sliced bread" as they would say. I've been traveling through there daily since 1968 and traffic has never flowed more smoothly as it does now.

It works so slick. I have never seen a back-up since the day they put the barrels up during construction.

# Cost, Schedule

- Current estimate: \$ 3-4 million
- Funding source: 80% Federal, 20% State
- Schedule: earliest projected construction would be 2019, dependent on several factors
- Construction estimated to last one season (April-November), will be verified
- Expected that traffic would be maintained on existing roads – no detours



# Questions?

